Annual Report
'87-'88

The Apiary Program staff was heavily involved in the federal survey for the Varroa mite, Varroa jacobsoni. At the end of the fiscal year, 41 apiaries had been surveyed. No Varroa mites were found.

One hundred and nine telephone calls and 45 letters were received requesting information and/or assistance. Each was promptly responded to.

With information and education playing an important role throughout the year, a total of three beekeeping schools, 14 meetings, one television tape, two radio tapes and three major public relations events were attended and/or conducted by program staff. In addition, five beekeeping pamphlets and a 42 page booklet were revised to update the program's educational literature.

Biological Control - Gypsy moth pupae were collected, held in the insectary at Inwood and observed for the emergence of pupal parasites, in a continuing survey to monitor the occurrence, abundance and geographical range of gypsy moth parasites within the state.

The field evaluation of the gypsy moth inherited sterility egg release project was completed. Information collected was transferred to the US Forest Service's Tom O'Dell for analysis.

In an effort to resurrect musk and curled thistle biocontrol activities, that have suffered at the expense of gypsy moth work, a work plan was formulated for a survey of previous thistle-feeding weevil release sites to locate population reservoirs for further distribution.

A cooperative WVDA-APHIS European corn borer (ECB) parasite survey was initiated in the state. One hundred ECB larvae were sampled from each site, established through use of a 26-mile grid, and sent to a rearing facility in Mission, Texas, where they were held for parasite emergence.

Meetings were attended and assistance was given to the Cooperative Extension Service in connection with the Cooperative State-County-Landowner Gypsy Moth Suppression Program initiated this year.

A major highlight was the acquisition of a new personal computer and software for the office. The word processing program was of immediate help in the writing of reports and memo's. The dBase program shows a lot of potential for storage and recall information used frequently in the Gypsy Moth Suppression program. An internal modem was installed and software was added to make it possible to communicate with the Charleston office.

Under cooperative assistance activities with the U.S. Department of Agriculture's Plant Protection & Quarantine Programs, 31 Federal phytosanitary certificates were issued for apple shipments to seven foreign countries.

The entomologist in charge of this program resigned during the third quarter and the position was taken by the legislature before it could be filled. Planned work that remained subsequent to the resignation was not completed.

Cooperative Forest Pest Action - The Gypsy Moth Program continued to account for more hours than all other pest problems combined. Nine full-time employees and 4 part-time employees worked full-time conducting egg mass surveys, banding trees, monitoring treatment areas, obtaining information on parasites, and general detection surveys for larvae, pupae or pupal cases and egg masses.

The pheromone trapping program for male moths in 1987 produced catches in 39 counties outside the areas considered generally infested in the Eastern Panhandle. The catches in Calhoun and Logan were new county records.

The largest gypsy moth aerial suppression project to date was successfully completed in May 1988 with the spraying of 139,124 acres in Jefferson, Berkeley, Morgan, Hampshire, Hardy, Grant and Mineral Counties. The cost of spray material and the aerial contract for the project was $4.30 per acre. A Cooperative State-County-Landowner Gypsy Moth Suppression Program was initiated to allow landowners to participate in the Department's aerial contract. This program accounted for 33,541 acres of the total treatment area. The remaining 105,583 acres were treated with WVDA and USFS remaining funds.

Aerial flights conducted in June 1988 revealed 72,000 acres of gypsy moth defoliated forest land. This defoliation acreage was broken down by county as follows: Berkeley - 28,360, Morgan - 23,783, Hampshire - 13,362, Jefferson - 3,685, Hardy - 2,795 and Mineral - 15.

The Appalachian Gypsy Moth Integrated Pest Management (AIPM) Demonstration Project was formally introduced and started in May 1988. This program is 100% federally funded.

The principal native insects active during the period included: locust leafminer, yellow poplar weevil, ambrosia beetle, fall cankerworm, and walkingstick.

Hardwood forest tree diseases of significance included: oak decline, sycamore anthracnose and dogwood anthracnose. Oak decline resulting from drought stress and insect activity was probably the most significant problem.

However, sycamore anthracnose disease was widespread and severe in many sections of the state.

One of the more serious urban tree problems was a dieback of sugar maples at The Greenbrier caused by Steganosporium sp.. Oak wilt caused by Ceratocystis fagacearum continues to claim a few oak trees in urban settings in the Huntington-Charleston area.

The pinewood nematode (Bursaphelenchus xylophilus) has been detected in dying Scotch pine trees in a number of Christmas tree plantings. This was the first time that this pathogen had been observed on apparently healthy and vigorous trees in West Virginia. If drought stress continues, researchers have stated that there could be a disease epiphytotic in Scotch and Austrian pine plantings.

An experimental plot was set up at Parks' Christmas tree plantation in Nicholas County to study pine root decline caused by the fungus Leptographium procerum. The insecticide Dursban was applied to the white pines on a monthly basis, March through October, in the hope of controlling the vector for this disease. To date, six trees were either symptomatic or dead in the spray block.

The white pine blister rust project's field suppression activities were phased down and terminated on December 31, 1987, after 50 years of continuous operation. Full-time employees Roscoe Johnson and Dana Keaton retired. The Pipestem office and Franklin storage area were closed. All records, files and equipment were moved to the Union office for storage.

J. B. McLaughlin Agricultural Library - Currently, the library's holdings include 4,850 books, 860 bound periodical volumes, a large number of unbound periodicals, and 225 boxes of pamphlets and technical papers. There were 240 new books processed during the year. In December, 1987, a computer program for pamphlets was developed and, as of the end of this year, 750 pamphlets had been processed into the computer. Two-thirds of these were pamphlets which had come from the Capitol library and one-third were more recent. There are still over 300 unprocessed books in the Animal Health library, which will go into a computer as soon as they receive one and a book program is installed.

Nursery Inspection and Registration - There were 167 nurseries and 391 nursery dealers registered to sell nursery stock in the state this year. Inspections were conducted at 246 nurseries and nursery dealerships, resulting in 1,111 individual pieces of nursery stock and approximately 12.5 acres of field grown nursery stock being quarantined, due to the infestation of insects and plant diseases. One violation of the West Virginia Noxious Weed Act was

discovered during the year, when autumn olive was found being sold at a Wood County nursery dealership. The prohibited plants were placed under embargo and ordered to be sent back to their source in Ohio.

Seventeen establishments were found violating the Plant Pest Act, by selling nursery stock without the required certificate of registration.

Federal and interstate regulatory work included nine inspections for houseplants being moved out of state by homeowners.

Pest Identification Laboratory (PIL) - The total number of identified insect specimens in the Reference Insect Collection stood at 22,285, compared to 14,672 at the end of the previous fiscal year, or an increase of 34 percent.

Two more Cornell cabinets were added in September, bringing the capacity of the collection to 24 cabinets with 288 drawers.

Donations to the Reference Insect Collection totalled 430 specimens. Most of these had already been identified.

Sorting the contents of nearly 300 pitfall trap samples to taxonomic order, from Dr. P.J. Martinat's Dimilin studies in the Eastern Panhandle, was completed.

More than 1,000 specimens of the economically important, but taxonomically difficult, genus Phyllophaga, being studied by Tom McCutcheon at West Virginia University, were identified.

The proposed publication by the PIL entomologist on the Cerambycidae of West Virginia was completed.

Two papers by the PIL entomologist on flat bark beetles were either published, or about to be published, in Insecta Mundi.

Phone calls were down 7% to 2,854, as compared to the previous year of 3,078, and specimens also decreased 9% from 649 to 586. Tabular breakdowns of this year's totals are given in the report proper.

Several news releases were prepared by Plant Protection staff this fiscal year. Subjects included: gypsy moth programs, Japanese beetles, household insects, honey bee parasites, varroa mite quarantine, nursery registration, yellow poplar weevil, a European corn borer parasite, carpenter bees, ticks, eastern tent caterpillar, sycamore anthracnose, and illegal entry of honey bees into the state.

A biological control poster exhibit was prepared for use at the State Fair and was later used at the Department's exhibit at the Forest Festival.

Newly purchased Cornell cabinets and drawers for the safe storage of insect reference specimens for the program were received and installed.

COOPERATIVE FOREST PEST ACTION PROGRAM

This program provides for forest insect and disease surveillance and detection programs, and, when necessary, forest pest eradication or abatement programs, all under authority of the Plant Pest Act of 1967, as amended 1972. The program participates in a formal agreement with the United States Forest Service (USFS) and cooperates with the West Virginia University Plant Pathology Department, the USFS and the Forestry Division of WVDA in conducting surveys, identifying causal agents, delimiting infestations, planning control programs, and assisting citizens of West Virginia in forest insect and disease-related problems. The activities of the Program are administered and carried out by the Forest Entomology and Forest Pathology Sections. Primary section programs include Gypsy Moth, White Pine Blister Rust and Oak Wilt.

Entomology Section

During fiscal year 1988, the insect again receiving the most attention was the gypsy moth. Several native insects were abundant and caused moderate defoliation to hardwoods.

Gypsy Moth

The fourth year of defoliation by gypsy moth was recorded in June, 1988. Approximately 72,000 acres of hardwoods were defoliated by the gypsy moth in Jefferson, Berkeley, Morgan, Hampshire, Mineral, Grant and Hardy Counties. Approximately 14,435 acres were defoliated in 1987, 8,250 acres in 1986, and 2,450 acres in 1985.

Tree mortality was observed in the areas defoliated in 1986 and 1987. Those areas in the Sleepy Creek Public Hunting and Fishing Area, Cacapon Mountain and North Mountain experienced the heaviest mortality.

Detection, Abundance and Defoliation Surveys - The gypsy moth project, again this year, accounted for more hours than all other pest problems combined. Six full-time employees and four part-time employees worked full-time on conducting egg mass surveys, banding trees, monitoring treatment areas for egg masses, obtaining information on parasites, and general detection for larvae, pupae and egg masses. Larval detection monitoring was not conducted in

the treatment areas due to layoff of all gypsy moth field personnel in July, 1987.

The trapping program for male moths in 1987-88 was supplemented by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS), with a state cooperative funding project for southwestern West Virginia and a trapping program conducted by APHIS personnel in the northern section of West Virginia. All counties were trapped on a 1-trap-per-4-square-mile grid.

The counties having male moth catches in 1987 and the numbers were: Barbour - 426, Brooke - 80, Calhoun - 1, Doddridge - 47, Fayette - 6, Gilmer - 1, Greenbrier - 6, Hancock - 86, Harrison - 462, Lewis - 44, Logan - 1, Marion - 639, Marshall - 205, Mercer - 34, Monongalia - 531, Monroe - 8, Ohio - 136, Pleasants - 3, Pocahontas - 79, Randolph-670, Ritchie - 12, Roane - 3, Summers - 7, Taylor - 393, Tyler - 51, Upshur - 61, Webster - 1, Wetzel - 316, and Wood - 2.

The counties of Calhoun and Logan are new county records for male moth catches. The counties not recording any male moth catches were: Kanawha, Lincoln, Wayne, Raleigh, Wyoming, and McDowell. The counties of Jefferson, Morgan, Berkeley, Hampshire, Hardy, Mineral, Grant, Tucker, Preston and Pendleton counties were not trapped due to other life stages of the gypsy moth being found within.

All counties were trapped at 1 trap/4 square miles except Wayne, Lincoln, Boone, Logan, Mingo, Raleigh and McDowell, which were trapped on a random 25 traps per county.

Banding of host trees continued throughout the Eastern Panhandle and in counties adjacent to the infested counties. The gypsy moth infestation has been found as far west as eastern Preston, northern Tucker and eastern Pendleton Counties. The infestation has not advanced as rapidly as in previous years.

The egg mass surveys conducted in early and late summer and throughout the fall indicated the need to treat approximately 332,765 acres in the spring of 1988. The areas treated in the spring of 1987 showed an average reduction in gypsy moth egg mass density of better than 90% and none were scheduled for retreatment.

Aerial flights conducted in June, 1988 revealed that 72,000 acres of forest land were defoliated. The amount of defoliation by county was as follows: Berkeley - 28,360 acres, Morgan - 23,783 acres, Hampshire - 13,362, Jefferson - 3,685 acres, Hardy - 2,795 acres, and Mineral - 15 acres.

Of the 72,000 acres defoliated, 3,050 were found in treatment blocks. These areas were, specifically, the top of Cacapon Mountain and the Capon Springs area. It is believed these areas were defoliated due to a combination of sparse foliage (bud break) and four inches of rain which occurred in the days immediately following the application.

Suppression - The treatment plans for gypsy moth began in the early fall of 1987 and approximately 332,785 acres of forest land were selected for treatment in Berkeley, Jefferson, Morgan, Hampshire, Mineral, Grant and Hardy Counties. Adjustments on acreage were made due to limited State money for the cooperative USFS program. The final acreage to be treated was 139,124 acres. The State-County-Landowner Program accounted for 33,541 acres and 105,583 acres were treated with remaining 1987-88 Department monies and cooperative U.S. Forest Service funds.

The aerial application bid was revised and sent to prospective bidders in ample time for the bids to be processed. The contract was awarded to Ruhe Ag Services of Leipsic, Ohio at a cost of $1.67 per acre. The cost of the chemical (Dimilin) was $2.63 per acre, making the total cost per acre $4.30.

The actual treatment program began on May 1, when 2 DC-3's and one Turbine Thrush arrived at Martinsburg Airport. After calibration, the aircraft started treating on May 2 and continued to May 12 at 7:30 p.m. when all scheduled acreage was treated.

The weather during the operation was excellent with the only delays occurring on days when rain, wind, temperature or other unsuitable conditions existed. The equipment and aircraft supplied by the contractors were in acceptable condition and only minor breakdowns occurred.

All areas were treated with Dimilin 25W at the rate of 2 ounces 25W (.03 lb. active ingredient) per acre in total volume of one gallon of water to the acre.

Native Forest Insect Surveys

Forest insect surveys were conducted for various native insects throughout West Virginia. The eastern tent caterpillar which normally causes great concern with urban dwellers, was practically nonexistent throughout WV. A polyhedrosis virus and tachinid fly are primarily responsible for reducing the population. The populations are expected to increase in the next several years.

The fall webworm, which was abundant in 1984, has subsided and few nests were observed in the high mountain areas. This insect is sporadic and surveys to determine outbreaks are inconsistent.

The locust leafminer continued at low levels in southern West Virginia. However, major infestations were noted in the high mountains and Eastern Panhandle.

The yellow poplar weevil caused extensive damage to yellow poplar throughout West Virginia during June-July 1986 and very heavy damage in June-July 1987. The infestations in 1988 were visible, but apparently on the decline.

In 1985-86, ambrosia beetles caused considerable damage to CCA treated lumber, cross ties and rails. As a result, several sawmill operations were forced to treat the log decks and lumber with Ambrocide. In 1986-87, the beetles were reported causing damage to lumber at mills which were treating for their control. In 1987-88 the only mill reporting problems with Ambrosia beetles was Mullican Lumber Company located in Richwood. This mill installed a treating facility.

In July and August of 1986, an oak sawfly, Pristiphora sp., defoliated red oak over several thousand acres of forest land in Barbour and Randolph Counties. Ground and aerial observations in 1987-88 indicated the insect population has collapsed.

Surveys for the fall cankerworm were conducted in the counties of Pocahontas, Randolph, Tucker, Greenbrier, Pendleton, Hardy, and Grant. The surveys indicated defoliation would occur in Grant County north of the Stoney River Dam. Aerial flights in June confirmed the survey observations that defoliation would occur. Small infestations were noted at Glenmore and Bickle Knob in Randolph County.

Surveys for the oak leaftier were conducted in the same counties as the fall cankerworm. No areas were found to contain populations of the tier.

A walkingstick infestation was noted in Grant County on Knobley Mountain, where approximately 80 acres of oak were defoliated.

Information and Education

Tours and camps were arranged and attended. These were: National 4-H Forestry Invitational at Jackson's Mill, Conservation Camp, Forest Industries Camp, the Webster County Nature Tour, and the Annual Wildflower Pilgrimage at Blackwater Falls State Park.

The Mountain State Forest Festival is attended on an annual basis and a display depicting forest insects is set up and manned by Program personnel.

Numerous talks and programs were presented throughout the year. They included: radio talks with WVDA's Rob Moss on a scheduled basis, radio talks with local stations on various topics, and programs and talks to garden clubs, schools, forestry groups, civic organizations, and various committee meetings.

A biannual newsletter provides information on forest insects and diseases and is sent to cooperators and other interested individuals. The newsletter was reduced from a quarterly format to reduce costs.

The annual forest insect and disease calendar was prepared and mailed. The calendar depicts forest insects and diseases (in black and white photographs) that occur in West Virginia. The bottom section contains timely information on treatment of various insects and diseases.

Program Administration

The combined Entomology and Pathology Sections employed 11 full-time personnel, who worked on various programs. One of these employees retired at the end of April, one is a forest entomologist, who works with forest diseases, and nine worked on the gypsy moth project.

Four summer (part-time) employees were hired to assist with the various activities in the gypsy moth program.

A cooperative agreement is completed each year and submitted to the USFS for cooperative funding for the Forest Pest Action Program and the Gypsy Moth Suppression Project. These funds are on a 50/50 matching basis, but the Forest Pest Action Program is limited to $40,000. Reimbursement claims are submitted on a Federal fiscal year basis (October 1 - September 30), or upon completion of the project.

An environmental assessment and a work and safety plan are written each year to satisfy the needs of the USFS when conducting a suppression project.

Public meetings to address the Gypsy Moth Suppression Project were planned and held April 11, at the East Hardy High School, April 12, at the Vocational Technical Center at Keyser, and April 13, at the Army Reserve Building at Romney. These meetings were designed to review the areas slated for treatment. Project issues and concerns had been addressed at public meetings in January, but attendees were nevertheless given the opportunity to comment. No issues or concerns, detrimental to the program, were voiced. The

greatest concern of those attending was making sure they were in a treatment area. If they were not in a treatment area, they desired to know why they were omitted.

A letter giving notification of public meetings, and a brief description of the proposed project was prepared and sent to over 50 individuals and groups. The letter allowed the person or group a chance to voice any concerns they may have with the impending 1988 treatment project. All responses received were in favor of the project.

Appalachian Gypsy Moth Integrated Pest Management (AIPM) Demonstration Project

This project was initiated in the summer of 1987 and was formally introduced in West Virginia during May 1988. This 100% federally funded project was made possible through the efforts of Senator Robert C. Byrd, with the objective of curbing the spread of gypsy moth down the Appalachian Mountains in Virginia and West Virginia.

The CFPA program leader is on the planning committee for the project and several meetings were attended before the committee agreed upon the final work plan. The project has been set up to operate for five years.

The project began in May 1988 with the hiring of a full-time project assistant supervisor, two regional supervisors, six field agents, and nineteen part-time employees to conduct male moth pheromone trapping.

Cooperative State-County-Landowner Gypsy Moth Suppression Program

This program was initiated in December 1987 - February 1988 to assist landowners in treating their property for gypsy moth. This action was brought on by the inaction of the West Virginia legislature to appropriate funding for gypsy moth suppression.

Basically, the landowner would pay 57% of the cost of treatment to their land and the USFS would pay 43%. The landowner payment would be made to the county commission, which would, in turn, pay the WVDA for the cost of treatment. The WVDA would, by Letter of Credit, obtain the 43% from the USFS to cover the cost of treatment. A total of 33,541 acres was treated with private landowners in this program. The total cost of the project was $4.30 per acre. This amounted to $2.46 per acre being paid by the landowner.

Funds for gypsy moth suppression in 1989 have not been forthcoming from the legislature, so the only program for 1989 will be a cooperative state-county-landowner project.

Pathology Section

The primary responsibilities of the forest pathologist are to conduct disease surveys and investigations in hardwood and conifer stands. The surveys are necessary in order to detect the presence and severity of native and introduced diseases so that healthy forests can be maintained. Disease epiphytotics may cause growth loss, a reduction in log grade or tree value and tree mortality. Information on disease incidence can be used to reduce these losses. Work was accomplished as scheduled in each of the major areas of the work plan. Travel restrictions imposed due to budget constraints did serve to limit the amount of travel and consequently the number of surveys and investigations that were conducted.

Tree Disease Surveys and Investigations

Hardwoods - The most significant hardwood disease problem investigated during the fiscal year was oak decline. This problem has been observed in much of the state. Investigations regarding oak mortality were conducted at Panther State Forest in McDowell County and Camp Creek State Forest in Mercer County. At each location, FPU Forester Al Waldron of the Forestry Division assisted with the investigation. Of the many oak species present at each site, scarlet and black oak appeared to be the most commonly affected trees. In nearly every case, either the root rot pathogen Armillaria mellea and/or an insect, the two-lined chestnut borer, were the agents responsible for the mortality. Drought conditions were considered to be the predisposing agent.

Hardwood foliage disease surveys were conducted throughout the state in conjunction with other surveys and investigations. Incidence of sycamore anthracnose disease varied from moderate to heavy throughout much of the state. This disease appeared to be particularly severe along the state's major river drainages. White oak anthracnose disease was very spotty. At a few locations, the white oaks were nearly totally defoliated, while at most locations, there was little or no infection. Dogwood anthracnose disease (Discula sp.) is still a threat to our native dogwood trees. Mortality from this disease is beginning to occur at Alvon and Neola in Greenbrier County.

Oak wilt aerial surveys were conducted over 21 high oak wilt disease incidence quadrangles in the southern portion of the state. Due to budgetary limitations, only one coverage flight was conducted. No flights were conducted over the 16 high-disease incidence quadrangles in the Eastern Panhandle. No trends in disease incidence were detected. At least two coverage flights are needed to get an accurate picture of disease incidence.

A request for assistance with an ash decline survey was prepared and submitted to the Forestry Division. The request asked for all service foresters to examine white and green ash trees exhibiting ash decline symptoms. Suspect trees were to be reported to the forest pathologist. Ash decline, caused by a mycoplasma like organism (MLO), has not been reported in West Virginia. However, this disease is becoming a serious problem in sections of the Northeast and Midwest. A pest alert sheet with color photographs of symptomatic trees was provided to each forester. Apparently, none of the foresters have encountered ash trees displaying decline symptoms, because none have responded with information on declining ash trees.

An investigation was conducted in Randolph County near Monterville to determine what had defoliated the hardwood timber in the area. The area was scouted for evidence of gypsy moth. However, there was no evidence of egg masses, pupal cases or larval cast skins. After examining the feeding damage and tree species involved, it was determined that the looper complex was responsible.

Urban Trees - At the request of the Director of the College of Graduate Studies at Institute, several trips were made during the summer to the Lucy Quarrier Estate in Charleston. The elm trees were inspected for evidence of Dutch elm disease. The other trees and shrubs were also examined for any other disease problems. Fortunately, everything appeared to be healthy and in excellent growing condition.

A trip was made to The Greenbrier in Greenbrier County to determine what was killing the young maples on the grounds. The symptomatic trees were not located near any irrigation systems. Apparently, severe drought conditions stressed the trees. The fungus Steganosporium sp. had readily infected the trees, causing branch mortality. The combination of drought and fungal infection rapidly killed the trees.

Oak wilt is not only a serious forest tree disease, but can be an urban problem as well. One Huntington family lost at least three black oak trees to this disease in their backyard. Apparently, the landowner had his trees trimmed in the early spring, and the insect vectors were attracted to the fresh wounds on the trees.

Forest Conifers - While conducting disease surveys in conifer stands in Mercer County, a root rot condition was noted on some dying white pine trees. Fungal fruiting structures found near the tree were identified as Phaeolus schweinitzii (Polyporus schweinitzii). This was a first report of this root and butt rot pathogen in West Virginia.

requesting the certificates were either moving to Florida or California.

Due to changes in staff assignments, the forest pathologist was placed in charge of the Guthrie Demonstration Orchard and the vineyard at Slaughter Creek. The vineyard suffered extensive damage from bears. Approximately 30 bushels of apples were harvested from the Guthrie orchard.

At the request of two different utility companies, investigations were conducted into the cause of tree mortality at locations in Randolph and Raleigh Counties. Reports were prepared and submitted to the property owners and utility companies.

APHIS representative Joe Messineo and the forest pathologist inspected Dr. Ralph Scorza's USDA Fruit Research Lab near Kearneysville, to determine if genetically engineered plant materials could be safely handled. Follow-up inspections were conducted to ensure that all deficiencies had been corrected.

Each spring, the forest pathologist receives one or more requests from the Animal Health Division regarding poisonous plant surveys in pastures. Mr. Presly of Jackson County lost several cows this spring. Poisonous plants were suspected. The forest pathologist surveyed the pastures at the Presly farm for suspect plants. Although poisonous plants were located, none were suspected of causing this problem. Symptomatology of the dying cows suggested that the suspect plant would be in the genus Senecio.

White Pine Blister Rust

The White Pine Blister Rust Survey and Control Program was phased down during the first and second quarters of the fiscal year, and field suppression activities were terminated on December 31, 1987. All records and files formerly kept at Pipestem and Franklin were moved to Union, Monroe County, for storage. The office at Pipestem was closed down. Dana Keaton, the Blister Rust Coordinator, retired on December 31. Full-time employees Ed Warner and Roscoe Johnson were transferred to the Gypsy Moth Suppression Program.

The move to close out the program resulted from several factors: West Virginia was one of the last states that still conducted an eradication program; the USDA-USFS no longer provided funds for operating the program; two of the three persons still employed full- time on the Blister Rust Program retired during the fiscal year; most of the area where blister rust was once a problem is now on maintenance